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MEETINGS WITH COSTLY PARTICIPATION: A COMMENT*

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Abstract

In a recent paper Osborne, Rosenthal and Turner (2000) investigate a model of meetings with costly participation. Their main result is that the equilibrium number of participants is small and their positions are extreme. In particular, when the policy space is one-dimensional and the policy outcome is the median of participants' positions, they conclude that the number of attendees is even. The proof is flawed. We construct an example with an odd number of attendees. Oddness of the number of participants has a dramatic consequence on how equilibria look like.

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1 Introduction

In a recent paper Osborne, Rosenthal and Turner (2000) investigate a general model of meetings with costly participation. A group of people may participate, at a cost, in a meeting, and the resulting decision is a compromise among the participants' favorite policies. Their main achievements point out that the equilibrium number of participants is small and their positions are extreme. Among various results, they study the prominent case in which the policy space is one-dimensional and the compromise is the median. It is self evident how a full characterization of the equilibria for this case it is the most needed for applications. The authors offer such a characterization but, unfortunately, their proof is flawed and, as a simple example shows, their results do not hold. As a major consequence, also "nonparticipation of moderates" does not hold. Before presenting the example, let us describe the specification of the model we are analyzing.[1]

There is a group of n people who have to collectively choose a policy in a compact convex subset of $\Re$, which contains 0. Person i's favorite policy (i.e., his position) is denoted by x_i. Favorite policies are symmetrically distributed around 0.[2] Person i's valuation of the policy x is a strictly concave function of the Euclidean distance between x and his favorite policy. Each person chooses whether to attend a meeting or not. A person who participates in the meeting, referred to as an "attendee", bears a cost $c > 0$. The final policy is the median of the attendees' favorite positions.[3] If nobody participates the policy is 0.

2 Meetings with an odd number of participants

The results we mainly focus on are those described by Proposition 3 in Osborne, Rosenthal and Turner (2000), which proposes a characterization of the equilibria for the model described above. Such a characterization would be the most useful for many applications, given the natural appeal of the median in a model of compromise when the policy space is one-dimensional. According to Proposition 3, in every equilibrium the number of attendees is even. The proof of Proposition 3 is flawed[4] and an example shows that the result does not hold. In a final remark we point out that the consequences on equilibrium behaviors are devastating.

We now present an example in which the number of attendees is odd.

[1] We do not describe the general model, but only the specification we are concerned with, that is the one corresponding to Proposition 3 in the original paper. Readers are urged to refer to it, for the complete model, motivations and exhaustive discussions.

[2] That is to say, the number of players with most preferred policy x is the same as the number of players with favorite position $-x$.

[3] When the number of attendees is odd, the median is the middle favorite policy of the attendees. If the number of attendees is even, the median is assumed to be the mean of the two middle favorite policies of the attendees.

[4] In their proof, the authors assume that, given a player i whose favorite position is x_i and a point $y \neq x_i$, there exists a player l whose favorite position x_l is symmetric with x_i about y. This is assured by the assumption of symmetric distribution of favorite positions only if $y = 0$, but, obviously, cannot hold for any y, if the number of players is finite.

There is a group of six people, $\{a, b, c, d, e, f\}$, characterized by the following favorite policies $x_a = -11$, $x_b = -3$, $x_c = -1$, $x_d = 1$, $x_e = 3$, $x_f = 11$. The cost of attending the meeting is $c = 20$, and the valuation function is simply $-(x_i - x)^2$. It is quite immediate to verify that an equilibrium exists in which players a, d, and e attend the meeting, while players b, c, and f do not attend the meeting. This configuration can be conveniently depicted as:[5]

●	○	○	●	●	○
-11	-3	-1	1	3	11
a	b	c	d	e	f

In this case the median is 1 and the utilities, incorporating the costs of participation, are the following:

$$\begin{aligned} u_a &= -164,\ u_b = -16,\ u_c = -4 \\ u_d &= -20,\ u_e = -24,\ u_f = -100 \end{aligned}$$

We now show that the utility of every participant decreases if he does not participate. If a does not attend the median becomes 2 and his utility -169, if d does not participate the median moves to -4 and his utility to -25 and, finally, if e does not attend the meeting the median becomes -5 and his utility -64. Also any non-attendee has no incentive to change his decision. If either b or c participates, the median moves either in -1 or in 0, where the attendee is worst off since he has to pay the cost. Finally, if f decides to participate, the policy becomes 2 and his utility -101.

Remark: One of the main results contained in Osborne, Rosenthal and Turner (2000) is the nonparticipation of moderates, that is "in an equilibrium only players whose favorite positions are sufficiently far from the compromise participate. Similarly, only players whose favorite positions are sufficiently close to the compromise do not participate" (p. 929). Clearly, the above example contradicts as well this result: the two most moderate players and just one extremist are the attendees of the meeting. Moreover, the equilibrium we constructed is strict, and, hence, it is not affected by minimal shifts of the position of c and d faraway from zero. In this new configuration, e becomes strictly closer to the compromise than c. But, more dramatically, through this example we can construct, for any integer $m > 0$, cases with $4m + 2$ persons, half of which participates, and more than half of the participants are the closest to the compromise. This can be simply achieved by a slight shifting of the position of c and d faraway from zero and adding, to our example and respecting the symmetry, four groups of $m - 1$ players sufficiently close, respectively, to a, b, e and f. In this way, we can obtain a game that has an equilibrium in which the set of participants consists of d and the players located close to a or e.

This shows that, if the compromise function is the median, it is even impossible to obtain a result of "low" participation of the moderates, even in a situation in which half of the people decide to not participate.

[5] As in Osborne *et al.* (2000), each disk represents the favourite position of an attendee while a circle the one of a nonattendee.

References

[1] Osborne M. J., J. S. Rosenthal, and M. A. Turner (2000) Meetings with Costly Participation, American Economic Review, 90: 927-943.